

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **INTRODUCTION**

**1800**

(New 8/2014)

This State Administrative Manual (SAM) chapter provides the policies and guidelines put in place pursuant to the [Green Building Action Plan](#) accompanying [Executive Order B-18-12](#). In partnership with other state agencies, the Department of General Services develops policies and guidelines for the operation and maintenance of state buildings to achieve operating efficiency improvements and water and resource conservation, and continually incorporates them into the SAM.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **DEFINITIONS**

**1801**

(New 8/2014)

For definitions of terms used in this SAM Chapter, please refer to the [Green California glossary](#).

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **STANDARD OPERATING PROCEDURES FOR ENERGY MANAGEMENT IN STATE BUILDINGS**

**1805**

(New 8/2014)

The intent of this section is to announce policy and guidelines regarding efficient energy management in state buildings during normal operations.

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### POLICY

1805.1

(New 8/2014)

All state agencies shall follow the [\*Standard Operating Efficiency Procedures\*](#) for managing energy usage in state-owned buildings and, as practical, in state-leased buildings. Department directors or their designees shall designate energy coordinators for each location their department occupies. Energy coordinators are responsible for ensuring that the Standard Operating Efficiency Procedures are carried out to the extent that funding is available and they do not conflict with health and safety requirements or operations necessary for a department to fulfill its mission and responsibilities.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

**AUTHORITY**  
(New 8/2014)

**1805.2**

[Executive Order B-18-12](#) requires that state agencies:

1. Take measures toward achieving Zero Net Energy for 50 percent of the square footage of existing state-owned building area by 2025;
2. Take measures to reduce grid-based energy purchases for state-owned buildings by at least 20 percent by 2018, as compared to a 2003 baseline, and reduce other non-building, grid-based retail energy purchases by 20 percent by 2018, as compared to a 2003 baseline; and
3. Participate in “demand response” programs to obtain financial benefits for reducing peak electrical loads when called upon, to the maximum extent that is cost-effective for each state-owned or leased facility, and does not materially adversely affect agency operations.

To meet the Executive Order requirements, state agencies must ensure that they are operating at a high standard level of operating efficiency. This SAM section outlines Standard Operating Efficiency Procedures to ensure efficient energy management in state buildings during normal operations, helping to achieve the Executive Order requirements.



## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **STANDARD OPERATING EFFICIENCY PROCEDURES**

**1805.3**

(New 8/2014)

State departments shall follow the Standard Operating Efficiency Procedures described below, to the extent that funding is available and they do not conflict with health and safety requirements or operations necessary for a department to fulfill its mission and responsibilities.

Department directors or their designees shall designate energy coordinators for each location their department occupies. Energy coordinators are responsible for ensuring that the Standard Operating Efficiency Procedures are carried out, except as noted above.

Throughout this section, the term “facility manager” is used. Depending on the structure of the individual facility, the “facility manager” may be the building operator, property manager, or another employee. Other titles may include staff services manager, business services assistant, office building manager, real estate officer, associate business management analyst and associate governmental program analyst. State agencies are responsible for identifying the appropriate party or designee to implement all procedures indicated.

#### **General Requirements**

1. At the end of the workday or when not needed, employees shall turn off all lights and equipment in their work space, except for equipment designated as 24/7 or for which there is a specific need for after-hours operations (e.g., email servers, fax machines or other essential equipment). Facility managers are encouraged to install reminder labels.
2. If occupancy controls are not used in common areas, facility managers or appropriate designees shall turn off all equipment and non-emergency lighting at the end of the workday or when not needed.
3. Information Technology managers or appropriate designees shall enable the automatic power-down or “Energy Saver” feature on all computers, copiers, printers, and other electrical equipment, consistent with IT Policy Letter 10-09 and subsection 12 of the [State Administrative Manual Section 4819.31](#).
4. When purchasing equipment, state agencies shall purchase the most energy efficient ENERGY STAR rated equipment that is practical, considering Environmentally Preferable Purchasing principles.

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **STANDARD OPERATING EFFICIENCY PROCEDURES** (New 8/2014)

**1805.3 (Cont. 1)**

#### Hours of Operation

Typically, state-owned and leased buildings will be operational from 6:00 AM through 6:00 PM Monday through Friday (excluding facilities that are designated as 24/7 or continuously operational). All non-essential lighting and other electrical loads shall be minimized outside of normal building hours. State agencies are expected to make a reasonable determination as to what functions must continue outside of these hours.

#### Building Heating and Cooling Systems

1. Facility managers shall allow building temperatures to fluctuate within an acceptable range to avoid wasteful over-control patterns. This range may vary with each building's control system; the target range is plus or minus two degrees Fahrenheit from the temperature set point, for a total fluctuation of four degrees Fahrenheit. The temperature set point should be no higher than 68°F in winter and no lower than 78°F in summer; unless such a temperature in a particular job or occupation may expose employees to a health and safety risk. Simultaneous or alternate heating and cooling operations to maintain exact temperature in work areas shall be avoided.
2. Whenever practical, facility managers shall operate and adjust controls to get optimum advantage from outside temperatures for meeting cooling demand (e.g., using outside air economizers and night flush cycles). Avoid operating chillers and compressors when possible. All "pre-cooling" options for buildings shall be employed.
3. State employees are prohibited from using personal heaters without the express written consent of the facility manager or an approved reasonable accommodation request.
4. State employee shall keep windows and doors closed to prevent loss of heated or cooled air, unless the facility manager has indicated that the building is specifically designed for natural ventilation efficiency.
5. State employees in state-occupied locations shall adjust window blinds or coverings, if installed, to prevent solar heat gain during summer and prevent heat loss in winter.

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **STANDARD OPERATING EFFICIENCY PROCEDURES**

**1805.3 (Cont. 2)**

(New 8/2014)

6. Facility managers shall order data center operators to maintain ambient temperature settings at manufacturer specification maximums.
7. Facility managers shall not set domestic hot water temperatures above 105° F unless this conflicts with a code requirement for the facility. Facility managers and state employees in state-occupied locations shall take every opportunity to minimize hot water usage.

#### Year-Round Maintenance

1. Facility managers shall inspect and maintain ducts, air filters, and related hardware to maximize effectiveness at the lowest acceptable power use.
2. Facility managers shall tune up all forced and induced draft gas and oil-fired boilers at least twice annually. If there are automated combustion controls, verification of combustion efficiency shall be conducted at least twice annually.

#### Lighting

1. State employees in state-occupied locations shall turn off all lights in unoccupied rooms. Facility managers shall install occupancy sensors whenever practical. Occupancy sensors shall be selected to be appropriate to the room geometry and usage patterns of the space. When areas served exceed 10,000 square feet, occupancy sensors should undergo quality assurance testing included in building systems that are commissioned.
2. Facility managers shall reduce lamps and/or luminaires in number and/or wattage to provide the lighting level appropriate for the activities of the work area affected.
3. Facility managers shall replace any incandescent lighting with higher efficiency sources, such as fluorescent, high intensity discharge (HID), light-emitting diode (LED), or induction lighting whenever replacement is required.
4. For fluorescent lights, facility managers shall have a plan by December 2015 to replace any older “core and coil” magnetic ballasts with newer energy-efficient electronic ballasts.

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **STANDARD OPERATING EFFICIENCY PROCEDURES**

**1805.3 (Cont. 3)**

(New 8/2014)

5. Facility managers shall install some form of daylight controls in day-lit zones (near windows and under skylights). When such day-lit areas exceed 10,000 square feet, or are part of new construction or a major renovation, these day lighting controls (e.g., sensors that adjust artificial lighting in response to the available natural light) should be included in building systems that are commissioned.
6. Where practical, facility managers shall consider the significant energy savings made possible by the selection of lower level general ambient lighting with small-area, high-efficiency fluorescent or LED task lighting for higher level task lighting requirements – an approach particularly appropriate for work stations and computer use areas.
7. When painting or renovating, use light colored ceiling, wall, floor and desk surfaces throughout building to boost overall ambient illumination levels (dark surfaces absorb light). Keep lighting fixtures clean to maintain lighting levels.
8. Facility managers shall have custodial personnel turn lights on only as needed and turn lights off when their work is done. Where practical, have custodial personnel work in teams to complete cleaning on each floor of multi-story buildings.

#### **Plug Loads**

1. State employees shall not plug in any personal devices, including but not limited to coffee pots, microwaves, refrigerators, and heaters, in workspaces. Exception: the following may be allowed if the facility manager determines that the circuit can safely accommodate the electrical load:
  - a) Cell phones and tablets;
  - b) Task lighting that is UL approved and does not use incandescent or halogen bulbs.

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **STANDARD OPERATING EFFICIENCY PROCEDURES**

**1805.3 (Cont. 4)**

(New 8/2014)

2. Facility managers shall work with employees and vendors to ensure that all equipment in employee kitchens, lunch rooms, and other shared spaces complies with the following:
  - a) Additions of new equipment must have a current ENERGY STAR rating, when available;
  - b) As practical, strive to replace refrigerators and equipment manufactured prior to 2000 with more efficient models;
  - c) Refrigerated beverage vending machines and hot/cold water dispensers that are purchased, leased, or supplied by an outside vendor must be ENERGY STAR rated to the current version, when available;
  - d) All vending machines with non-perishable items must comply with one of the following:
    - Have built-in low power modes for lighting and refrigeration, as applicable and described in ENERGY STAR program requirements for refrigerated beverage machines, [version 3.0, section 3\(B\)](#); or
    - The facility manager has installed an after-market occupancy sensor.
  - e) Coffee makers must shut off automatically;
  - f) Equipment must be regularly cleaned and maintained to optimize efficiency.
3. Facility managers shall install power strips with timer settings and/or inexpensive, energy-efficient timers to turn off equipment during non-work hours (including paper shredders, lighted ambient snack vending machines, and hot/cold water dispensers). In implementation of this section, facility managers shall follow any applicable procurement guidelines established for such equipment.
4. Department directors or their designees shall distribute an annual email to educate all employees about the importance of minimizing electrical plug loads and to review relevant state policies and guidelines.

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **STANDARD OPERATING EFFICIENCY PROCEDURES**

**1805.3** (Cont. 5)

(New 8/2014)

#### Demand Response

Facility managers should be proactive in contacting their local utility to research the various [demand response programs](#) and select appropriate options, when applicable. When an electrical emergency is predicted for the day, the facility manager shall alert state employees and building operations in anticipation of the emergency, and shall implement curtailment measures immediately upon or before the emergency declaration.

In facilities with appropriate energy management systems installed, automated demand response should be considered.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **RESOURCES**

**1805.4**

(New 8/2014)

1. [Plug Load Best Practices Guide](#): Managing Your Office Equipment Plug Loads, New Buildings Institute.
2. [Commercial Plug Load Energy Use Policy](#): What's in Place, Pending and Possible, New Buildings Institute, April 2013.
3. [Plug Load Control](#), U.S. General Services Administration, September 2012.
4. [Assessing and Reducing Plug and Process Loads in Office Buildings](#), National Renewable Energy Laboratory, April 2013.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **PROCEDURES FOR ENERGY MANAGEMENT IN STATE BUILDINGS DURING ELECTRICAL EMERGENCIES**

**1810**

(New 8/2014)

The intent of this section is to provide information regarding actions state agencies shall take to control energy usage during electrical emergencies.



## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **POLICY**

**1810.1**

(New 8/2014)

State agencies shall designate personnel to receive Department of General Services (DGS) [Electrical Emergency Notifications \(EENS\) list server](#). Additionally, state agencies shall incorporate the procedures for electrical emergencies into their departmental Emergency Plans.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

**AUTHORITY**  
(New 8/2014)

**1810.2**

[Executive Order B-18-12](#) mandates that state agencies participate in “demand response” programs to obtain financial benefits for reducing peak electrical loads when called upon, to the maximum extent that is cost-effective for each state-owned or leased facility, and does not materially adversely affect agency operations.

Federal law requires that the California Independent System Operator ([CAISO](#)) maintain specified levels of energy reserves available to the electrical grid. When reserves reach dangerously low levels because electrical demand is high, the CAISO may declare a Stage 1 Electrical Emergency to bring about a reduction in demand. The CAISO can escalate the emergency to Stage 2 and then Stage 3 if curtailment measures do not successfully reduce demand. Finally, the CAISO may use rotating outages to balance the demand for electricity to the available supply.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **ELECTRICAL EMERGENCY NOTIFICATION SYSTEM (EENS)**

**1810.3**

(New 8/2014)

The DGS EENS Manager will use email to notify all parties that have registered for the [EENS list server](#) on the EENS Web page.

All state agencies should have one or more persons from each state-owned or state leased facility subscribe to the list server so they can receive electrical emergency notifications. It is the responsibility of the agencies to update the contact e-mail addresses on the list server as required.

For information on the EENS system, copies of energy instruction documents, and additional energy conservation information and links, please send an e-mail to [EENS@dgs.ca.gov](mailto:EENS@dgs.ca.gov) .

The DGS Real Estate Services Division periodically conducts tests of its notification system. The test messages will also contain information on how to update agency contact information.

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### PROCEDURES FOR ELECTRICAL EMERGENCIES

1810.4

(New 8/2014)

The DGS Real Estate Services Division will alert departments, universities, and community colleges when the [CAISO](#) declares a Stage 1, 2, or 3 Electrical Emergency and when those Stages are cancelled.

This table contains links to documents that provide detailed instructions on controlling energy usage. The energy management practices of all state agencies should conform to these procedures.

Emergency Status	Link to Procedures
Stage 1 Electrical Emergency	<a href="#">Curtailment Measures</a>
Stage 2 Electrical Emergency	
Stage 3 Electrical Emergency	
Rotating Outage or Blackout	<a href="#">Safety Tips During Outages and Blackouts</a> <a href="#">Emergency Preparedness</a>

State agencies should print a copy of these procedures and incorporate them in departmental Emergency Plans in order to be prepared for an electrical emergency.

Based on operational needs, some departments may need to employ conservation measures that are more or less restrictive. Department energy management personnel must communicate department-specific instructions to the appropriate staff.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **DEMAND RESPONSE**

**1810.5**

(New 8/2014)

[Executive Order B-18-12](#) mandates that state agencies participate in “demand response” programs to obtain financial benefits for reducing peak electrical loads when called upon, to the maximum extent that is cost-effective for each state-owned or leased facility, and does not materially adversely affect agency operations.

State agencies should be proactive in contacting their local utility to research the various Demand Response programs and selecting an appropriate option, when applicable. When an electrical emergency is predicted for the day, the agency should prepare the occupants and operations in anticipation of the emergency and implement curtailment measures immediately upon or before the emergency declaration.

In facilities with appropriate energy management systems, Automated Demand Response should strongly be considered.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **RESOURCES**

**1810.6**

(New 8/2014)

1. [California Energy Alert](#)
2. Department of Personnel Administration [Employee Leave and Safety during Rolling Blackouts](#), January 23, 2001

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **ENERGY USE REDUCTION FOR NEW, EXISTING, AND LEASED BUILDINGS**

**1815**

(New 5/2015)

The intent of this section is to announce policy and guidelines for all state agencies to reduce and report energy use.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **POLICY**

**1815.1**

(New 5/2015)

All state agencies shall achieve targets and timelines for energy use reductions established in [Executive Order B-18-12](#) and the [Green Building Action Plan](#) for buildings they design, build, manage, or lease.

- Agencies shall include their strategies and procedures to achieve these targets in their existing building infrastructure plan updates.
- Agencies shall enter all energy consumption data into the ENERGY STAR® Portfolio Manager® annually, by March 1. As agencies automate their meters, this information will be collected monthly.



## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

**AUTHORITY**  
(New 5/2015)

**1815.2**

This management memo is executed under the Governor's executive authority established in [Executive Order B-18-12](#) and the [Green Building Action Plan](#).

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### REQUIREMENTS FOR NEW, EXISTING, AND LEASED BUILDINGS (New 5/2015)

1815.3

#### 1. New Buildings and Renovations

- a. All new building and renovation project computer modeling, reports, and other related documentation prepared as part of the design process shall become the property of the state once the project is closed out and/or has received an occupancy permit.
- b. All new building and renovation projects shall be designed and constructed to exceed by 15 percent the applicable version of the [Title 24, Part 6, Building Energy Efficiency Standards](#).
- c. All new building and renovation projects **less than 10,000 gross square feet of building area (gsf)** shall meet or exceed project applicable [Title 24, Part 11, California Green Building Standards](#) Tier One requirements.
- d. All new building and renovation projects **larger than 5,000 gsf and exceeding an energy use intensity (EUI) of 50,000 British thermal units (BTU)/gsf, or larger than 10,000 gsf** shall be commissioned in accordance with Leadership in Energy and Environmental Design ([LEED](#)) requirements and [California Title 24, Part 6, Energy Efficiency Standards](#) that are in effect at the time.
- e. All new building and renovation projects **larger than 10,000 gsf** shall:
  - i. Install and operate all design-appropriate and economically feasible clean, onsite power generation including, but not limited to solar photovoltaic, solar thermal, and wind power generation including clean backup power supplies.
    1. To the extent possible, explore methods of alternative financing including but not limited to [power purchase agreements \(PPAs\)](#) or other mechanisms to fund, install, and/or manage on-site renewable energy generation.
  - ii. Obtain LEED Silver or higher certification using the version of LEED that is in effect at the time the project schematic design documents are initiated by the state agency. Certification to an equivalent or higher rating system or standard (if any) is acceptable only when approved by the Sustainability Task Force.
- f. All new building and renovation projects that are authorized to begin the schematic phase of design on or after **January 1, 2020, and before January 1, 2025**, shall be constructed as zero-net-energy (ZNE) facilities, **unless** the department has achieved the goal of at least 50 percent of new building and renovation projects during that period being ZNE. All new building and renovation projects that are authorized to begin the schematic phase of design on or after **January 1, 2025**, shall be constructed as zero-net-energy (ZNE) facilities.

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## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### REQUIREMENTS FOR NEW, EXISTING, AND LEASED BUILDINGS (New 5/2015)

1815.3 (Cont. 1)

- g. All new buildings and renovation projects shall include an Energy Management Systems (EMS) with a training program for energy management and maintenance staff; or shall include an Energy Management Plan.

#### 2. Existing Buildings

- a. **Before January 1, 2016, all existing buildings over 50,000 gsf** shall complete LEED for Existing Building Operations and Maintenance (LEED-EBOM) certification. Buildings shall meet or exceed an ENERGY STAR rating of 75, to the maximum extent cost-effective.
- b. **For calendar year 2018 or before**, all state agencies shall take measures to reduce annual grid-based energy purchases for existing buildings by 20 percent, compared to a 2003 calendar year baseline. Total grid-based energy purchases shall be calculated in equivalent thousand British thermal units (kBtu) when compared to purchases in calendar year 2003 for all forms of energy provided (for example, electricity, natural gas, propane, and any other forms of energy) according to Table 1 below.

**Table 1: Site Energy kBtu Conversion**

ENERGY TYPE	ENERGY UNIT	SITE ENERGY CONVERSION
Electricity	1 kilowatt hour	3.412 kBtu
Natural Gas	1 therm	99.976 kBtu
Propane	1 gallon	95.500 kBtu

- i. Agencies shall enter current energy use data into the ENERGY STAR Portfolio Manager database, including electricity, natural gas, propane, on-site renewable energy, and any other forms of energy. Onsite renewable energy generated counts toward energy reductions and is not included in total energy purchases.
  - 1. Online access to the ENERGY STAR Portfolio Manager database shall be provided to DGS.
  - 2. Retail electricity purchases for water management activities directly associated with water conveyance and flood control are excluded.
- ii. Agencies shall set up automated energy data transfers from their utility into the ENERGY STAR Portfolio Manager database, if available from their utility.

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## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

(Continued)

### REQUIREMENTS FOR NEW, EXISTING, AND LEASED BUILDINGS

(New 5/2015)

1815.3 (Cont. 2)

- c. **Before January 1, 2025**, all state agencies shall take measures toward achieving ZNE for at least 50 percent of total state-owned building area (gsf) that they manage. Agencies shall:
  - i. Reduce non-facility energy use (including plug loads affected by building occupant behaviors, computers, equipment and appliances).
  - ii. Assess feasibility, methods, and mechanisms to install on-site renewable energy to generate as much energy over a year as all combined sources of energy used on the site during the same year.
  - iii. To the extent possible, explore methods of alternative financing including, but not limited to energy service companies ([ESCOs](#)), on-bill financing, GS-\$Mart, and PPAs.
- d. **By December 31, 2016**, all state agencies shall participate in all available demand response power supply programs designed to reduce peak electrical loads when such programs do not adversely affect state agency building operations, occupant performance or indoor environmental quality.
- e. Existing buildings shall incorporate building commissioning to facilitate improved and efficient building operations as set forth in Table 2 below.

**Table 2: Building Commissioning Criteria For Existing State Buildings**

Building Type	Building Area (gsf)	EUI (kBtu/sq. ft)	Required Commissioning
All existing state buildings	>50,000 gsf	EUI > 20	<a href="#">Monitoring-based commissioning</a> (MBCx)
	>5,000 gsf	EUI > 100	MBCx
Metered state buildings	>10,000 gsf	EUI > 30	MBCx

(Continued)

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **REQUIREMENTS FOR NEW, EXISTING, AND LEASED BUILDINGS**

**1815.3 (Cont. 3)**

(New 5/2015)

#### **3. Building Leases**

- a. All state agency build-to-suit leases shall be designed and constructed to meet the requirements of Section 1 above for New Buildings and Renovations.
- b. All new and renegotiated state building leases shall encourage lower than industry-standard energy and other resource use to the extent possible and economically feasible. These leases should also encourage landlords to participate in available utility programs that offer financial incentives and alternative financing to cover energy efficiency measure and renewable power system incremental costs.
- c. All new state building leases shall, where economically feasible, require the use of submeters for gathering energy use data as needed to complete ENERGY STAR Portfolio Manager reports.
- d. Renegotiated state building leases for buildings, where the state is a sole tenant, shall provide energy use data, if possible, for completing ENERGY STAR Portfolio Manager energy use evaluations and for benchmarking reports.
- e. All state-leased facilities shall participate in cost-effective demand response power supply programs designed to reduce peak electrical loads, if available, without adversely affecting state agency building operations, occupant comfort and performance, or indoor environmental quality requirements outlined in the State Administrative Manual (SAM), [Sustainable Operations and Practices Ch. 1800](#).

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **REPORTING REQUIREMENTS**

**1815.4**

(New 5/2015)

#### **4. Reporting Requirement**

Each state agency shall be responsible for developing annual energy use reduction goals and intended actions for achieving the goals stated in its five-year infrastructure plan.

- a. Agency Reporting Requirements for State-Owned (Existing) Buildings and New and Renegotiated State Building Leases.

The annual energy use reduction goals of existing buildings, as well as new and renegotiated state building leases, shall be included in the annual state agency five-year infrastructure plan, and annual whole building energy use shall be entered into the ENERGY STAR Portfolio Manager database, with access provided to DGS.

Benchmarking of initially occupied new buildings and build-to-suit leases should begin upon building occupancy.

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### RESOURCES

1815.5

(New 5/2015)

Alternative funding sources to support agency five-year infrastructure plans to meet or exceed the requirements of this management memo can include power purchase agreements ([PPA's](#)), [GS \\$Mart](#), the [Energy Efficient State Property Revolving Fund](#), or other funding mechanisms.

Title 24, Part 6, Energy Efficiency Standards <http://www.energy.ca.gov/title24/>

#### *Design Guidelines to Consider*

- Energy Design Resources, Investor-Owned Utilities [PG&E](#), [SDG&E](#), [SCE](#), [SMUD](#), and [LADWP](#)
- [Savings by Design Program](#)  
[Savings by Design Online Program Handbook](#)
- [Saving Energy in Commercial Buildings, NREL , U.S. Department of Energy](#)
- [Energy Star Building Upgrade Manual, U.S. Environmental Protection Agency](#)
- [National Institute of Building Sciences Whole Building Design Guide](#)
- [California Commissioning Guides for New Buildings and Existing Buildings](#)
- [Leadership in Energy and Environmental Design \(LEED\) Resources, US Green Building Council](#)
- [Database of State Incentives for Renewables & Efficiency](#)

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **ENERGY EFFICIENCY IN DATA CENTERS AND SERVER ROOMS**

**1820**

(New 11/2014)

The intent of this section is to provide direction to all state agencies under the Governor's executive authority to meet data center and server room energy efficiencies as required in the [Green Building Action Plan Section 10.7](#).



## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **POLICY**

**1820.1**

(New 11/2014)

State agencies will achieve energy operating efficiency in data centers and server rooms in state owned and state leased buildings.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **AUTHORITY**

**1820.2**

(New 11/2014)

[Executive Order B-18-12](#) mandates that DGS work with other state agencies to develop and implement policies and procedures for the operation and maintenance of state buildings to achieve operating efficiency improvements and water and resource conservation, and to continually update and incorporate these into the State Administrative Manual (SAM); pursuant to the [Green Building Action Plan section 10.7](#).

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### REQUIREMENTS OF DATA CENTERS AND SERVER ROOMS

1820.3

(New 11/2014)

1. By December 31, 2014, all state-owned and leased data centers and server rooms greater than 200 square feet shall be operated within the 2011 ASHRAE - TC 9.9, Class A1 – A4, recommended guidelines for temperature and humidity in addition to all applicable [2013 Title 24 Building Energy Efficiency Standards](#). In most cases it will not be necessary to control humidity and/or dew point in order to stay within the specified ASHRAE- recommended guidelines. If this becomes a problem, the Department of Technology can assist agencies by recommending solutions.

Temperature and humidity in data centers and server rooms shall be measured at the information technology (IT) equipment air inlets for temperature and humidity compliance. It is recommended that supply air inlet temperatures in data centers remain in the 23 to 27 degree Celsius (C) (73 to 81 degrees Fahrenheit) range.

Class	Equipment Environmental Specifications	
	Product Operations	
	Dry-Bulb Temperature (°C )	Humidity Range, Non-condensing
A1 to A4	18 to 27	5.5°C <b>Dew Point</b> to 60% <b>Relative Humidity</b> and 15°C <b>Dew Point</b>

2. All state data centers that exceed 1,000 square feet shall measure and report their power usage effectiveness (PUE) annually by December 31 (beginning December 31, 2014) to the Department of Technology using the Power Usage Effectiveness Report (TECH 408). For agencies whose cooling is supplied through the downtown Sacramento Central Plant, the Department of Technology can provide specific instructions for the calculations. Agencies are responsible for submitting these reports, and must base their PUE calculations on the criteria outlined in the [Green Grid publication](#).

Data centers that exceed a PUE of 1.5 shall reduce their PUE by a minimum of 10 percent per year until they achieve a 1.5 or lower PUE. These reductions can be achieved through energy saving measures and/or through scheduled and budgeted power and cooling supply equipment replacements. If agencies that manage data centers 1,000 square feet or larger do not have the expertise to reduce PUE, the Department of Technology can provide suggestions. The Department of General Services and local utilities also are excellent resources to suggest energy savings measures.

(Continued)

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **REQUIREMENTS OF DATA CENTERS AND SERVER ROOMS 1820.3 (Cont. 1)**

(New 11/2014)

3. When purchasing network switches and routers, all state agencies must specify the Energy Efficient Ethernet IEEE (Institute of Electrical and Electronics Engineers) 802.3-2012 Section 6 standard to the maximum extent possible. (Download a free copy of this IEEE standard from (the [IEEE Standards Association](#)).
4. All state agencies must consider virtualization (options when refreshing equipment or standing up new systems. Virtualization is the creation of a virtual rather than actual version of something such as an operating system a server a storage device or network resources. Use of the most energy efficient power supplies available should be included in the purchase of new IT equipment.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **RESOURCES**

**1820.4**

(New 11/2014)

1. Power Usage Effectiveness Report <http://www.cio.ca.gov/pdf/PUE-Reporting-Report.pdf>
2. Institute of Electrical and Electronics Engineers (IEEE) Standards <http://standards.ieee.org/about/get/802/802.3.html>

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **INDOOR ENVIRONMENTAL QUALITY: NEW, RENOVATED AND EXISTING BUILDINGS**

**1825**

(New 8/2014)

The intent of this section is to announce policy and provide direction to state agencies that build, lease and operate state buildings, on reducing indoor pollutant levels and ensuring healthful indoor environments for occupants in new, renovated, leased, and existing state buildings, as directed in [Executive Order B-18-12](#).

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### POLICY

1825.1

(New 8/2014)

State agencies that build, lease and operate state buildings shall implement measures to ensure a healthful indoor environment for their building occupants. State agencies shall implement as follows:

New/Renovated State Buildings: State agencies shall implement mandatory measures and relevant and feasible voluntary measures of the *California Green Building Standards Code (CALGreen)*, Part 11, related to indoor environmental quality (IEQ) that are in effect at the time of new construction or alteration. The information is available at <http://www.bsc.ca.gov/home/calgreen.aspx>.

Existing State Buildings: When accomplishing Alterations, Modifications, and Maintenance Repairs and when relevant and feasible, state agencies shall implement the mandatory and voluntary measures of the *California Green Building Standards Code (CALGreen)*, Part 11, related to indoor environmental quality.

New and Renegotiated State Leased Buildings:  
The Department of General Services (DGS) will encourage Lessors to implement measures of the *California Green Building Standards Code (CALGreen)* related to indoor environmental quality, where economically feasible, for all new or renegotiated leases.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

**AUTHORITY**  
(New 8/2014)

**1825.2**

[Executive Order B-18-12](#) mandates that state agencies implement relevant and feasible voluntary measures from Divisions A4.5 and A5.5 of the California Green Building Standards Code, to ensure healthy indoor environments for occupants.



## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### DEFINITIONS

1825.3

(New 8/2014)

For the purposes of SAM Section 1825 – 1825.5, the following definitions are used:

- ***Alterations*** - Any construction or renovation to an existing structure, other than repair, for the purpose of maintenance or addition.
- ***Modifications and Maintenance Repairs*** - Making alterations to an existing structure such that it will be better suited to current needs. This type of work may involve changing the use of interior space by repositioning walls, replacing fixtures, or other such modifications under the \$200,000 threshold triggering [CALGreen](#) compliance.

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### ENSURING A HEALTHY INDOOR ENVIRONMENT

1825.4

(New 8/2014)

There are major steps agencies can take to ensure a healthful indoor environment:

1. Use indoor products and materials that emit little or no harmful chemicals;
2. Provide appropriate ventilation, filtration and proper Heating, Ventilating, and Air Conditioning (HVAC) equipment maintenance;
3. Prevent water intrusion and the growth of mold;
4. Implement line of sight and “daylighting” for new buildings; and
5. Solicit feedback from tenants every two years.

Resources for implementing these steps are provided below:

#### Step 1: Use Indoor Products and Materials That Emit Little or No Harmful Chemicals

##### a) Building Materials

- i. Use adhesives, sealants, caulks, paints, coatings, and aerosol paints and coatings that meet the volatile organic chemical (VOC) content limits specified in *CALGreen* (Sections 4.504.2.1 through 4.504.2.4, and 5.504.4.1 through 5.504.4.3.1).
- ii. Use carpet systems, carpet cushions, composite wood products, resilient (e.g., vinyl) flooring systems, and thermal insulation, acoustical ceilings and wall panels that meet the VOC emission limits specified in *CALGreen* (Sections 4.504.3 through 4.504.5, 5.504.4.4 through 5.504.4.6, A4.504.1 through A4.504.3, and A5.504.4.5.1 through A5.504.4.9.1).

##### b) Furnishings and Seating

Use office furniture and seating that complies with either:

- i. The DGS' Purchasing Standard and Specifications (*Technical Environmental Bid Specification 1-09-71-52*, Section 4.7) or
- ii. The American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE) *Standard 189.1-2011* (Section 8.4.2.5).
- iii. CALPIA manufacturing and associated products are compliant with the DGS' Purchasing Standard and Specifications (*Technical Environmental Bid Specification 1-09-71-52*).

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## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

(Continued)

### ENSURING A HEALTHY INDOOR ENVIRONMENT

1825.4 (Cont. 1)

(New 8/2014)

c) Cleaning Products:

Use cleaning products that are low emitting and meet Green Seal (GS) Standard GS-37, *Cleaning Products for Industrial and Institutional Use*. CALPIA offers GS certified cleaning products at: <http://catalog.pia.ca.gov>

For relevant building types/uses, consider:

- GS-53, *Specialty Cleaning Products for Industrial/Institutional Use*
- GS-8, *Cleaning Products for Household Use*, and
- GS-52, *Specialty Cleaning Products for Household Use*

All GS standards can be found at:

<http://www.greenseal.org/GreenBusiness/Standards.aspx>

d) Cleaning Procedures:

- i. Specify, use and properly maintain effective vacuum cleaners that meet the Carpet and Rug Institute's TM 113 – 110901, *Laboratory Test Procedure for Quantifying Respirable Particulate From Vacuuming Carpet*. Information can be found at:  
[http://www.carpet-rug.org/documents/technical\\_bulletins/test\\_method\\_113.pdf](http://www.carpet-rug.org/documents/technical_bulletins/test_method_113.pdf)
- ii. Maintain entryways as specified in *CALGreen* (Section A5.504.5.1).
- iii. Use non-chemical cleaning methods where feasible. Minimize the use of chemicals when cleaning floor surfaces.
- iv. Follow the cleaning procedures of GS-42, *Commercial and Institutional Cleaning Services*.
- v. Follow the Carpet and Rug Institute's *Carpet Maintenance Guidelines for Commercial Applications*. See:  
<http://www.carpet-rug.org/Carpet-for-Business/Cleaning-and-Maintenance.aspx>

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **ENSURING A HEALTHY INDOOR ENVIRONMENT**

**1825.4** (Cont. 2)

(New 8/2014)

#### Step 2: Provide Appropriate Ventilation, Filtration, and HVAC Equipment Maintenance.

##### a) Existing Buildings – Maintenance and Operation

- i. Operate HVAC systems continuously during work hours and provide no less than the required minimum outdoor air requirements in effect when the building permit was issued, or if no building permit was issued, when the building was designed, constructed or renovated. Please refer to Cal- OSHA's Title 8 regulations, Section §5142: Mechanically Driven Heating, Ventilating and Air-Conditioning (HVAC) Systems to Provide Minimum Building Ventilation, at <http://www.dir.ca.gov/title8/5142.html>
- ii. Inspect HVAC systems at least annually; all HVAC inspections and maintenance shall be documented in writing (as required by Title 8, Section 5142). Annual inspections shall also include:
  - Verification of minimum outdoor airflows using properly calibrated hand-held airflow measuring instruments.
  - Confirmation that air filters are clean and replaced according to the manufacturer's specified interval or more frequently as needed based on specific local or seasonal conditions. Use high Minimum Efficiency Reporting Value (MERV) filters as specified below.
  - Verify that outdoor dampers, actuators, and associated linkages operate properly.
  - Check the condition of all accessible heat exchanger surfaces for fouling and microbial growth, and take action as needed.
  - Check condensate drain pans for proper drainage and possible microbial growth, and take action as needed to correct and to prevent future drain blockages and microbial growth.
  - To the extent accessible, inspect the first 20 feet of all lined ductwork downstream of cooling coils for visible microbial growth. If microbial growth is found, correct and take action to prevent future growth.
  - Ensure that cooling towers are properly maintained and records of chemical treatment of cooling tower water are kept. Cooling tower plume discharges closer than 25 feet to any building intake shall be retrofitted where possible to meet the 25 foot requirement.
  - Building managers shall develop a comprehensive HVAC preventative maintenance program.

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## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

(Continued)

### ENSURING A HEALTHY INDOOR ENVIRONMENT

1825.4 (Cont. 3)

(New 8/2014)

- iii. Where feasible, use filters with a MERV rating of no less than 11, as specified in Section A5.504.5.3.1 of *CALGreen*. Existing HVAC systems incapable of accommodating increased pressure drops associated with the 11 MERV rating shall use the highest MERV rating that their fan(s) can accommodate while providing the design airflows. To the extent possible, all fan change-outs shall be sized to accommodate MERV 13 filters.
- iv. Provide ongoing factory training for stationary engineers on proper operation and maintenance of all new and existing equipment, as well as all building management systems.
- v. Initiate a computer-based preventive maintenance program for all HVAC equipment (see DGS' [California Best Practices Manual, Section 2.3.5](#) for a description of the computerized maintenance management system).
- vi. Provide specialized air treatment for buildings in areas where air quality standards are routinely exceeded. Consider using:
  - Particulate matter air filters with a minimum MERV rating of 13 or higher (if feasible) for buildings in areas where the Environmental Protection Agency ([US EPA](#)) standards for PM10 (particulate matter) or PM2.5 are routinely exceeded.
  - Ozone-removing air cleaning devices with a minimum volumetric ozone removal efficiency of 40 percent in areas where the US EPA 8- hour average ambient ozone standard is routinely exceeded. These devices should be operated continuously during times that the relevant air quality standard is exceeded and the building is occupied. See <http://www.arb.ca.gov/adam/index.html> or contact your local air quality management district to determine whether a specific site falls into this category.
- vii. Purge buildings prior to daily occupancy with outdoor air, with either the minimum ventilation rate for one hour, or three complete air changes as required for non-residential buildings ([Section 120.1\(c\)2 of the 2013 California Code of Regulations, Title 24, Part 6.](#))

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## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

(Continued)

### ENSURING A HEALTHY INDOOR ENVIRONMENT

1825.4 (Cont. 4)

(New 8/2014)

b) New and Renovated Buildings

- i. Commission new buildings to ensure proper installation and operation of all building systems, including the proper delivery of the required amount of outdoor air ([Title 24, Part 6, Section 120.8](#)).
- ii. Implement relevant *mandatory* measures and relevant and feasible *voluntary* measures from CALGreen (Division 5.5 and Appendix section A5.5).
- iii. Provide specialized air treatment for buildings in areas where air quality standards are routinely exceeded.
  - Use particulate matter air filters with a minimum MERV rating of 13. MERV 16 or HEPA (high efficiency particulate arrestance) filters should be considered where feasible for institutional residential buildings that house sensitive groups such as the elderly or infirm, and buildings used by children.
  - Consider using ozone-removing air cleaning devices with a minimum volumetric ozone removal efficiency of 40 percent in areas where the US EPA 8-hour average ambient ozone standard is routinely exceeded. These devices should be operated continuously during times that the relevant air quality standard is exceeded and the building is occupied. See <http://www.arb.ca.gov/adam/index.html> to determine whether a specific site falls into this category.
- iv. Specify that all HVAC systems above 2,000 cubic feet per minute (cfm) be equipped with outdoor airflow measuring stations and be connected to a building energy management system. Building management systems shall be programmed to provide audible and visible alarms when minimum outdoor airflow rates are not met. If feasible, HVAC systems smaller than 2,000 cfm shall also be equipped with such airflow measuring stations.
- v. Specify that all HVAC systems above 2,000 cubic feet per minute (cfm) be equipped with outdoor airflow measuring stations and be connected to a building energy management system. Building management systems shall be programmed to provide audible and visible alarms when minimum outdoor airflow rates are not met. If feasible, HVAC systems smaller than 2,000 cfm shall also be equipped with such airflow measuring stations.

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## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

(Continued)

### **ENSURING A HEALTHY INDOOR ENVIRONMENT**

**1825.4** (Cont. 5)

(New 8/2014)

- vi. Develop an IEQ Construction Management Plan that incorporates measures in *CALGreen* Sections A5.504.1 through A5.504.2 for actions during and after construction to ensure healthful IEQ.

#### **Step 3: Prevent Water Intrusion and Growth of Mold**

Keep all buildings clean and sanitary as required by Title 8 Section 3362 <http://www.dir.ca.gov/Title8/3362.html>. When exterior water intrusion, leakage from interior water sources, or other uncontrolled accumulation of water occurs, the intrusion, leakage or accumulation shall be corrected, typically within 24-48 hours because these conditions may cause the growth of mold.

#### **Step 4: Line of Sight and Daylighting – New Buildings**

- a) Toplighting and sidelighting are recommended per *CALGreen* (Section A5.507.2); recommended are the use of light shelves, reflective room surfaces, means to eliminate glare, photosensor controls and not using diffuse daylighting glazing where views are desired. See <http://newbuildings.org/lighting> and [http://www.wbdg.org/resources/daylighting.php?r=dd\\_lightingdsqn](http://www.wbdg.org/resources/daylighting.php?r=dd_lightingdsqn) for additional information.
- b) Direct line of sight to the outdoor environment via vision glazing between 2.5 and 7.5 feet above the finished floor in 90 percent of all regularly occupied areas is required. (*CALGreen* Section A5.507.3).

#### **Step 5: Input from Occupants – Existing Buildings**

Input from building occupants should be solicited every two years to obtain feedback on any IEQ and/or comfort concerns. One of the following methods should be used:

- a) Occupant surveys to collect information on IEQ, as well as on other sustainability issues, such as the need or desirability for electric vehicle charging stations, commute alternatives, etc.
- b) Maintenance and regular review of an occupant complaint database documenting complaints related to IEQ and response to the complaints.

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### RESOURCES

1825.5

(New 8/2014)

Guidelines and standards can help state agencies achieve acceptable IEQ, including but not limited to:

1. VOC emission limits for building materials established by CDPH (<http://www.cal-iaq.org/separator/voc/standard-method>);
2. Architectural coatings guidelines and composite wood rules from CARB (see [CALGreen](http://www.arb.ca.gov/coatings/arch/docs.htm), <http://www.arb.ca.gov/coatings/arch/docs.htm>, and <http://www.arb.ca.gov/toxics/compwood/compwood.htm>;
3. Green Seal guidelines for cleaning products and processes <http://www.greenseal.org/GreenBusiness/Standards>
4. Ventilation, filtration, and daylighting regulations from the Energy Commission (see current building efficiency standards at <http://www.energy.ca.gov/title24/> -
5. Cal-OSHA requirements (<http://www.dir.ca.gov/title8/5142.html>, <http://www.dir.ca.gov/title8/3362.html>, and others);
6. Measures included in criteria from green building organizations such as those in the US Green Building Council's Leadership in Energy & Environmental Design program (<http://www.usgbc.org/leed/rating-systems>);
7. ASHRAE (consensus) standards for ventilation and filtration: <https://www.ashrae.org/>
8. California Best Practices Manual: Better Building Management for a Better Tomorrow (<http://www.green.ca.gov/GreenBuildings/BBBTManual.aspx>);
9. California Buying Green Guide: Standards and Specifications for Environmentally Preferable Purchases (<http://www.dgs.ca.gov/buyinggreen/Home/BuyersMain.aspx>); and
10. Building Standards Commission Guidebooks (<http://www.bsc.ca.gov/pubs/guides.aspx>).



## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **WATER EFFICIENCY AND CONSERVATION**

**1835**

(New 8/2014)

The intent of this section is to provide direction to all state agencies under the Governor's executive authority on meeting the water use reduction requirements outlined in [Executive Order B-18-12](#).

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **POLICY**

**1835.1**

(New 8/2014)

State agencies shall reduce water use at their facilities 10 percent by 2015, and 20 percent by 2020 as measured against a 2010 (or earlier) baseline. State agencies shall enter complete annual water use data into the [Energy Star Portfolio Manager](#), and provide access to the Department of General Services (DGS) by March 1 of each year.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

**AUTHORITY**  
(New 8/2014)

**1835.2**

[Executive Order B-18-12](#) mandates that DGS work with other state agencies to develop and implement policies and procedures for the operation and maintenance of state buildings to achieve operating efficiency improvements and water and resource conservation, and to continually update and incorporate these into the State Administrative Manual (SAM).

Executive Order B-18-12 also requires state agencies to reduce overall water use at the facilities they operate by 10 percent by 2015 and by 20 percent by 2020, as measured against a 2010 baseline.

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### DEFINITIONS

1835.3

(New 8/2014)

For the purposes of SAM Section 1835, the following definitions are used:

- **Process Water** – Water used for manufacturing processes, for testing and maintaining manufacturing equipment, and water used in combined heat and power facilities.
- **GrayWater** - Untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. Includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

**WATER USE REPORTING REQUIREMENTS**

**1835.4**

(New 8/2014)

The following are water use reporting requirements for state agencies:

**1. General Requirements**

By March 1 of each year, state agencies shall enter complete annual water use data for the preceding year into the Energy Star Portfolio Manager database. Agencies shall provide online access to this data upon completion to the Department of General Services, Office of Sustainability, and notify upon completion to [sustainability@dgs.ca.gov](mailto:sustainability@dgs.ca.gov).

Agencies may exclude process water from the annual reporting and water use reduction requirements. Also excluded is water used for fish and wildlife habitat, livestock maintenance, and firefighting. Annual usage will be measured against the baseline data previously reported by each state agency to determine if water reduction targets are met.

**2. Instructions for Leased Facilities**

New and renegotiated state leases shall include provisions for reporting water use where economically feasible. Agencies managing state-owned buildings are to report water usage. If agencies lease a building or space (state owned) managed by DGS, DGS will report the water use for that building space. If a state agency other than DGS manages the building or space, that agency will report the water use for that building.

**3. Estimating Water Use at Facilities without Water Meters**

It is understood that not all state facilities can report actual water use, because metering or sub-metering is not available. This does not exempt these agencies/facilities from responsibility for active management of water consumption or reporting of water use. Baseline and ongoing water use can be estimated based on the water use ratings of fixtures and appliances at the site, the duration per use, amount of usage, and the number of occupants. Department of Water Resources [Water Use Reduction Guidelines and Criteria](#) document provides guidance on how to baseline water usage and report annual usage for facilities without meters. Agencies operating in these facilities should also apply Best Management Practices for Water Use, and document policies for purchasing/replacing water-using fixtures and/or equipment with higher efficiency models. If not cost prohibitive, state agencies should make water meter installations a priority so they can obtain accurate measurements of water use.

## SAM – SUSTAINABLE OPERATIONS AND PRACTICES

### WATER USE REQUIREMENTS

1835.5

(New 8/2014)

The following are requirements for water use for state agencies:

1. State agencies shall purchase, install and operate [WaterSense](#) or equivalent (labeled) industry standard fixtures and equipment (including irrigation equipment) whenever it is available, cost-effective, and meets quality requirements.
2. Landscape plants shall be selected based on their suitability to local climate and site conditions, and reduced water needs and maintenance requirements.
3. All new and renovated state buildings and landscapes shall utilize alternative sources of water wherever cost-effective. Sources may include, but are not limited to: recycled water, graywater, rainwater capture, storm water retention, and other water conservation measures.
4. State agencies should perform the following critical activities for water use reduction:

- a. Implement Best Management Practices (BMPs)

BMPs are ongoing actions that establish and maintain water use efficiency. State agencies must implement the BMPs in the [Water Use Reduction Guidelines and Criteria](#). State agencies are responsible to review and apply these BMPs to all facilities they occupy.

- b. Complete Building and Landscape Inventories

State agencies should complete a Building and Landscape Inventory every five years. The quantitative inventory requires a facility walk-through to assess the types, numbers and condition of all water using fixtures, appliances and irrigation equipment.

- c. Implement a Landscape Water Budget Program

Large landscape areas over 20,000 sq. ft. should be managed and water use tracked with a landscape water budget program. Large landscape water use often represents a significant percentage of a facility's water use, and significant water savings can often be achieved through better irrigation scheduling or inexpensive improvements in irrigation hardware. Landscape maintenance staff should attend an [Environmental Protection Agency WaterSense-labeled training program](#) to become proficient in landscape water budgeting and water management.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **FACILITIES EXEMPT FROM WATER USE REDUCTION REQUIREMENTS 1835.6**

(New 8/2014)

Buildings or facilities that meet or exceed 2010 or newer [CalGreen](#) water efficiency standards may be exempted from water use reduction requirements, since they already meet low water use targets. Supporting documents or data must be provided if requested and may include monthly/annual utility water use reports and/or water use calculation tables that document the water use ratings.

Agencies must still report the water use of these facilities in the Energy Star Portfolio Manager database on an annual basis, as outlined in section 1835.4.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **RESOURCES**

**1835.7**

(New 8/2014)

1. [Department of Water Resources, Water Use and Efficiency Branch](#)
2. [SBX7-7](#)  
[Sustainable Sites Initiative](#)
3. [Greening Federal Facilities](#)  
[Graywater regulations](#)
4. [American Rainwater Catchment Association](#)
5. [Irrigation Association](#)
6. [Establishing Baselines and Meeting Water Conservation Goals of Executive Order 13423](#)
7. [Water Smart Guidebook; a Water-Use Efficiency Plan](#)
8. [California Landscape Contractors Association WMCP](#)  
(Water Management Certification Program)
9. [River Friendly Guidelines for Landscape Professionals](#)
10. [Green California](#)
11. [Water sense](#)
12. [CalGreen](#)



## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **RECYCLING AND WASTE DIVERSION PRACTICES**

**1840**

(New 8/2014)

Please refer to [SAM Chapter 1900](#) – Waste Prevention and Recycling of Non-Hazardous Waste.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **STATE AGENCY BUY RECYCLED CAMPAIGN (SABRC)** (New 8/2014)

**1845**

Departments will consider Recycled Content Products (RCP) in conducting their purchasing activities. Please refer to State Contracting Manual (SCM) [Vol. 2](#) and [Vol. 3](#), Chapter 3 – Socioeconomic and Environmental Programs.

## **SAM – SUSTAINABLE OPERATIONS AND PRACTICES**

### **ENVIRONMENTALLY PREFERABLE PURCHASING**

**1850**

(New 8/2014)

Departments are required to purchase commodities that meet [DGS Purchasing Standards](#). Please refer to State Contracting Manual (SCM) [Vol. 2](#) and [Vol. 3](#), Chapter 3 – Socioeconomic and Environmental Programs.